# DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

## LAKE TROPHIC DATA

## MORPHOMETRIC:

Lake: ZEALAND POND	Lake Area (ha): 1	.21
Town: BETHLEHEM	Maximum depth (m): 1.2	
County: Grafton	Mean depth (m): 0.4	
River Basin: Merrimack	Volume $(m^3)$ : 490	0
Latitude: 44°11'45" N	Relative depth: 1.0	
Longitude: 72°29'30" W	Shore configuration: 1.0	3
Elevation (ft): 2480	Areal water load (m/yr): 11.1	5
Shore length (m): 400	Flushing rate $(yr^{-1})$ : 27.9	0
Watershed area (ha): 13.3	P retention coeff.: 0.5	4
% watershed ponded: 0.0	Lake type: natural w/da	m

BIOLOGICAL:	27 July 1993
DOM. PHYTOPLANKTON (% TOTAL) #1	DINOBRYON 25%
#2	STAURASTRUM 25%
#3	(ALL WERE SPARSE)
PHYTOPLANKTON ABUNDANCE (cells/mL)	80
CHLOROPHYLL-A (µg/L)	1.09
DOM. ZOOPLANKTON (% TOTAL) #1	KERATELLA 48%
#2	CALANOID COPEPOD 39%
#3	
ROTIFERS/LITER	51
MICROCRUSTACEA/LITER	56
ZOOPLANKTON ABUNDANCE (#/L)	107
VASCULAR PLANT ABUNDANCE	Common
SECCHI DISK TRANSPARENCY (m)	1.2 Visible on bottom
BOTTOM DISSOLVED OXYGEN (mg/L)	7.3
BACTERIA (E. coli, #/100 ml) #1	4
#2	
#3	

## SUMMER THERMAL STRATIFICATION:

## not stratified

Depth of thermocline (m): None Hypolimnion volume (m³): None Anoxic volume (m³): None

CHEMICAL:	Lake: ZEALAND POND Town: BETHLEHEM  27 July 1993		
DEPTH (m)	0.5		
pH (units)	6.6		
A.N.C. (Alkalinity)	3.7		
NITRATE NITROGEN	< 0.02		
TOTAL KJELDAHL NITROGEN	0.17		
TOTAL PHOSPHORUS	0.012		
CONDUCTIVITY (µmhos/cm)	20.6		
APPARENT COLOR (cpu)	28		
MAGNESIUM	0.23		
CALCIUM	2.0		
SODIUM	1.5		
POTASSIUM	< 0.40		
CHLORIDE	< 3		
SULFATE	1		
TN : TP	14		
CALCITE SATURATION INDEX	3.8		

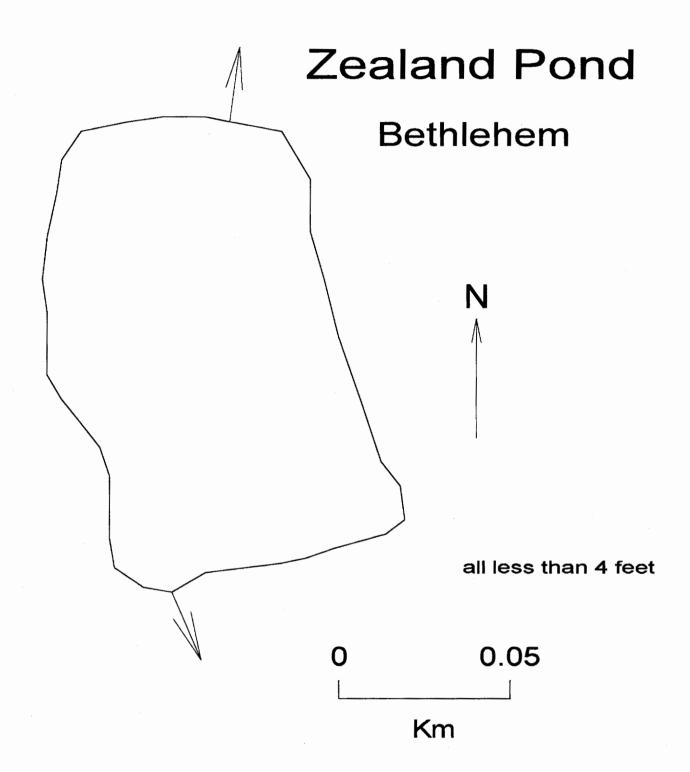
All results in mg/L unless indicated otherwise

TROPHIC CLASSIFICATION: 1993

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	3	3	0	6	Meso.

## **COMMENTS:**

- 1. This is a small remote pond located in the White Mountain National Forest. It has a very small watershed and is located near the divide between the Merrimack and Connecticut River basins. Zealand Pond outlet flows south though Zealand Notch, eventually to the East Branch Pemigewasset River. Wetlands just north of Zealand Pond form the headwater of the Zealand River which flows north to the Ammonoosuc River.
- 2. No winter samples were collected because the ice went to the bottom -- no water was found.
- 3. Merismopedia (25%) and Mallomonas (20%) were the dominant genera of wholewater phytoplankton.



## FIELD DATA SHEET

LAKE: ZEALAND POND

TOWN: BETHLEHEM

DATE: 07/27/93 WEATHER: SUNNY

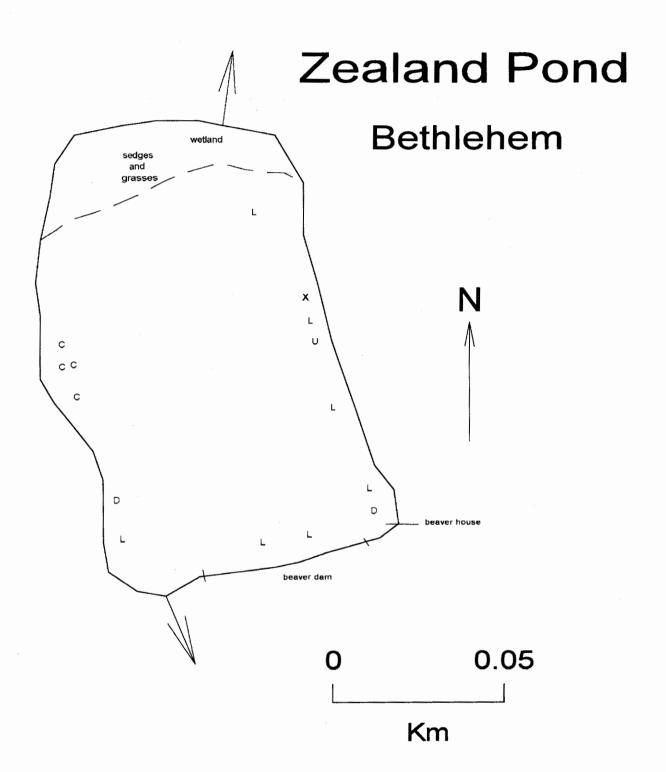
DATE: 07/27/93	MENIU	EK: SUNNI	
DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION
0.1	17.1	7.4	76 %
0.5	17.1	7.4	76 %
1.0	14.5	7.3	70 %
			·
· .			
· · · · · · · · · · · · · · · · · · ·			

SECCHI DISK (m): 1.2 VOB COMMENTS:

BOTTOM DEPTH (m): 1.2

TIME: 1200

\*Dissolved oxygen values are in mg/L



## AQUATIC PLANT SURVEY

LAKE: ZEALAND POND TOWN: BETHLEHEM DATE: 07/27/93 PLANT NAME Key **ABUNDANCE GENERIC** COMMON Х Sterile thread-like leaf Sparse L Chamaedaphne calyculata Leatherleaf Common U Utricularia Bladderwort Sparse D Drosera Sundew Sparse С Cyperaceae non-flowering sedge Sparse

#### OVERALL ABUNDANCE: Common

## **GENERAL OBSERVATIONS:**

- 1. Wetlands surrounded 90% of the pond.
- 2. A beaver lodge was present as well as a beaver dam along the southern shoreline. Apparently the beavers raised the water level so that the wetlands at the northern end of the pond drained to the north. Water continued to flow out the normal outlet to the south.